

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE

IN THE MATTER OF THE COMMISSION'S)
COMBINED CONSIDERATION OF THE)
UTILIZATION OF ADVANCED METERING)
TECHNOLOGIES UNDER 26 DEL. C.)
§ 100(b)(1)b. AND THE IMPLEMENTATION) PSC REGULATION DOCKET
OF FEDERAL STANDARDS FOR TIME-BASED) NO. 57
METERING AND TIME-BASED RATE)
SCHEDULES UNDER 16 U.S.C. §§ 2621(d))
(14) AND 2625(i))
(OPENED MAY 9, 2006))

FINDINGS AND RECOMMENDATIONS OF THE HEARING EXAMINER

DATED: DECEMBER 19, 2006

WILLIAM F. O'BRIEN
SENIOR HEARING EXAMINER

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William F. O'Brien, duly appointed Hearing Examiner in this Docket pursuant to 26 Del. C. § 502 and 29 Del. C. ch. 101, by Commission Order No. 6912, dated May 9, 2006, reports to the Commission as follows:

I. APPEARANCES

On behalf of Delaware Public Service Commission Staff:

JAMES McC. GEDDES, ESQUIRE
ASHBY & GEDDES

On behalf of the Division of the Public Advocate:

BO SHEN, PUBLIC UTILITY ANALYST

On behalf of Delmarva Power & Light Company:

ANTHONY WILSON, ESQUIRE

II. BACKGROUND

1. In May of this year, the Commission opened this proceeding to comply with state and federal requirements that it consider directing electric utilities in Delaware to implement advanced

metering technology, including time-based metering.¹ Advanced metering technology encourages "demand response" by allowing retail customers to participate in time-based pricing schedules. In addition, advanced metering provides the utility with numerous operational improvements including remote meter reading capability, enhanced load data collection, and more efficient outage detection.

2. Pursuant to public notice of this proceeding, the Division of the Public Advocate ("DPA"), Delmarva Power & Light Company ("Delmarva Power" or "Company"), and Delaware Electric Cooperative, Inc. ("DEC") filed for, and were granted, intervention as parties in the case. After its membership voted for self-regulation in August of 2006, DEC notified the parties of its intention to withdraw from the case as a party or participant.

3. On August 23 and September 21, 2006, Commission Staff, DPA and Delmarva Power ("Working Group") conducted workshops to review national initiatives pertaining to advanced metering (such as pilot programs) and to work towards development of a joint report for the Commission with recommendations for Delaware. The participants submitted their report ("Joint Report") on November 16, 2006. Pursuant to the approved schedule, written comments on the report were due on November 29, 2006, but none were received.

4. On December 4, 2006, a duly noticed public hearing was conducted at the Commission's offices in Dover. Representatives of

¹ As detailed in PSC Order No. 6912, Delaware's Electric Utility Retail Customer Supply Act of 2006 ("Supply Act of 2006") requires the Commission to evaluate the feasibility of requiring advanced metering and the federal Public Utility Regulatory Policies Act of 1978 ("PURPA"), as amended by the Energy Policy Act of 2005, requires the Commission to consider adopting a new PURPA standard relating to time-based metering.

Staff, DPA, and Delmarva Power introduced the Joint Report and presented witnesses to summarize its contents. No members of the public appeared but a representative of PEPCO Holdings, Inc. ("PEPCO") was in attendance. At the conclusion of the hearing, the record consisted of two exhibits (*i.e.*, the affidavits of publication of notice and the Joint Report) and a 22-page *verbatim* transcript of the proceedings. I have considered all of the record evidence and, based thereon, I submit these Findings and Recommendations for consideration by the Commission.

III. SUMMARY OF EVIDENCE

A. The Joint Report

5. In its report, the Working Group first provided an overview and history of the federal and state requirements regarding advanced metering infrastructure ("AMI") systems. (Ex. 2 at 3-6.)² It then recommended that the Commission adopt, as a definition of "advanced metering," the definition used by the staff of the Federal Energy Regulatory Commission ("FERC"), as follows:

Advanced metering is a metering system that records customer consumption [and possibly other parameters] hourly or more frequently and that provides for daily or more frequent transmittal of measurements over a communication network to a central collection point.

(*Id.* at 6-7.)

6. The Working Group described the operational improvements and customer service benefits provided by AMI, including those associated with remote meter reading, demand response, interval data capability,

² Exhibits will be cited as "Ex.____" and references to the hearing transcript will be cited as "Tr.____."

distribution system asset management, outage reporting, remote service disconnect, and tamper detection. (Id. at 7-8.) It also addressed the various types of advanced meters that are available, alternative communications methods that can be used to support AMI features, required billing system upgrades, and additional software that would be needed to utilize AMI capabilities. The Joint Report also included sections on demand response technology, customer education and utility training, deployment issues, AMI costs, cost recovery mechanisms, and cost effectiveness. (Id. at 8-13.) Appendix A provides a discussion of five alternative AMI communication methods; power line communications, broadband over power line, radio, and cellular/landline telephone.

7. Regarding cost effectiveness, the Working Group stated:

Due to the numerous utility operational improvements that can be attained through AMI, the improved utility customer services that can be provided, the refined wholesale and retail supplier pricing that can be designed and offered, and the improved demand response that can be attained, the Working Group suggests that the Commission consider examining the overall AMI business case rather than relying upon a traditional cost-effectiveness evaluation. One method of developing and refining this business case could include information gathered through a Delaware specific AMI pilot program.

(Id. at 12-13.)

8. The Working Group described Delmarva Power's existing metering equipment and tariffs and discussed rate design requirements for AMI. (Id. at 13-15.) It discussed various issues relating to market acceptance of AMI in Delaware and summarized advanced metering activities in other regions. (Id. at 15-17.) Appendix B provides a

matrix that tabulates certain pilot and full scale demand response programs in the United States and Canada. Appendix C is the FERC 2006 Staff Report, entitled "Assessment of Demand Response & Advanced Metering."

9. The Working Group then described the benefits of initiating a smart meter pilot program in Delaware during 2007 and possible funding mechanisms. (Id. at 18-21.) Benefits include: (1) direct Delaware electricity market stakeholder experience with the capabilities of AMI prior to any decision on a broad-scale rollout; (2) the ability to obtain Delaware specific residential and small commercial customer market data concerning customer price response; (3) an opportunity to test customer receptivity to alternative electricity pricing mechanisms, bill format, and accompanying demand response enabling; and (4) a near-term opportunity for pilot participants to gain additional control over their monthly electricity bills using new technology. (Id. at 18.)

10. With respect to funding of a smart metering pilot program, the Joint Report describes a disagreement between Delmarva Power and Staff regarding the terms of the November 2001 Settlement Agreement reached in connection with the Delmarva Power/PEPCO merger, as approved by the Commission in PSC Order No. 5941, dated April 16, 2002. (Id. at 20, footnote 13.) Delmarva Power believes that it did not agree to provide any financial contribution to the development and implementation of a pilot program whereas Staff believes otherwise. The parties did commit, however, to initiation of an AMI pilot program and, in furtherance thereof, Delmarva Power, Staff and DPA met on

numerous occasions to discuss a possible program. A summary of the meetings and activities is provided in Appendix D to the Joint Report.

11. The Working Group provided the following conclusions and recommendations:

The Working Group has concluded that the deployment of an AMI system by Delmarva could provide significant benefits to Delaware electricity consumers. These benefits could enhance utility customer service and utility distribution operations. Additionally, AMI and an accompanying upgrade of utility billing capabilities could provide customers with greater control over their monthly electricity bills by providing additional information and encouraging demand reductions during high priced periods. These reductions would be expected to exert downward pressure on wholesale electricity market prices over the long-run. However, the Working Group notes that any deployment of AMI and an accompanying upgrade of Delmarva's billing systems is costly and complex. Therefore, the Working Group is unable to recommend the universal deployment of AMI by Delmarva at this time until additional information is available.

The Working Group believes the Commission can address the requirements in the Federal and State legislation by doing one of the following:

- Create pilot.
- Study pilots and full scale programs going on elsewhere.
- Conclude that no action is required.

The Working Group believes that if the Commission elects to implement a pilot AMI program that this pilot would permit Delaware to explore and test the advantages without having to incur the costs of a full scale AMI deployment. AMI offers significant opportunities for improvements in utility operations in remote metering reading, demand response, interval data capability, distribution system asset management, outage reporting, remote service disconnect and connect, and tamper detection. The Working Group members recommend that if the Commission establishes a pilot that there be a pilot program development

group comprised of Delmarva, Commission Staff, and the Public Advocate. That working group should be directed to submit a specific pilot program design to the Commission for its approval by June 1 2007, for implementation during the third and fourth quarters of 2007. The proposed design should include all project elements, including recommended metering and demand response enabling equipment, communications systems, and recommended rate design.

It should be noted that there are several disadvantages of pilot smart metering programs including: 1) cost, 2) potential delay of full deployment of AMI pending full pilot evaluation, 3) statistical validity issues, and 4) that the deployed technology and billing systems are unlikely to be identical to the ones used in a broad scale AMI deployment. An alternative to relying upon a Delaware specific pilot to gather intelligence to enhance future decisions regarding demand response and smart metering opportunities would be to conduct a thorough examination of other recent smart meter pilot programs and full-scale deployments. Many of these recent activities are described in Appendix B of this report. Information such as demographics, geography, and customer market research from other programs could be combined with Delaware specific information to enhance insights into the potential impact of an AMI project in Delaware.

However, notwithstanding these disadvantages, the Working Group believes that a properly designed pilot program could provide the parties and the Commission with useable and reliable information as to the potential benefits from a more universal AMI deployment in Delaware. It is Staff's view that a pilot program will fulfill the commitment made at the time of the PEPCO merger to initiate a program to test the advantages of various metering technologies and is the natural outcome of the EURCSA legislation that instructed the Commission to investigate the desirability, feasibility and cost effectiveness of requiring advance metering technology.

(Id. at 21-23, footnote omitted.)

B. Witness Testimony

12. **Delmarva Power.** At the hearing, Steven Sunderhauf, Manager of Program Evaluation for Delmarva Power, summarized the Joint Report. (Ex. 2; Tr. 14-20.) He emphasized that AMI would require that Delmarva Power substantially upgrade, or replace, its current billing system. In addition, if AMI were deployed for a limited number of customers, many of the benefits would not be obtained while most of the costs of full-scale implementation would be incurred. He also estimated that full-scale deployment would cost between \$62.5 and \$74.4 million, in addition to \$15 million for billing system upgrades, which would be shared across all PEPCO Holdings electric distribution companies. He suggested that information gathered from advanced metering projects in other states could serve as a low cost way to determine whether AMI is appropriate in Delaware.

13. Mr. Sunderhauf also provided a modification to Delmarva Power's position regarding funding of a pilot program. In the Joint Report, Delmarva Power recommended that the Commission establish a non-bypassable customer distribution surcharge to recover all pilot costs over the duration of the pilot program. At the hearing, Mr. Sunderhauf adopted Staff's position that Delmarva Power contribute up to \$250,000 to the cost of a smart metering pilot program in Delaware. Any costs above that amount would be recovered from Delmarva Power's electric distribution customers through a surcharge. Mr. Sunderhauf noted that the DPA recommends that a cap be placed on the customer contribution, rather than on the Company's contribution, because

(according to DPA) the Company will benefit the most from the pilot program. (Tr. 18.)

14. Mr. Sunderhauf testified that Delmarva Power believes that advanced meter reading systems will substantially improve the operation of the electric distribution system and the ability of customers to better control their electricity bills. (Tr. 19.) Consequently, the Company likely will install an advanced metering system in Delaware at some time in the future. Of the three options regarding the pilot program (*i.e.*, create a Delaware-specific pilot, study advanced metering programs elsewhere, or do nothing at this time), Delmarva Power favors studying the results from other programs. Mr. Sunderhauf noted that pilot programs are expensive and time consuming and could delay the time when an advanced metering system could be deployed universally in Delaware. (Tr. at 20.) If the Commission chooses to do a pilot, however, Delmarva Power will work closely with the other stakeholders to create and implement the program.

15. **DPA.** Bo Shen, Public Utility Analyst, stated that DPA maintains its position as provided in the Joint Report. (Tr. at 20.) Dr. Shen emphasized that Delmarva Power should pay for the pilot program, rather than the customers. If the Commission decides that the Company can recover the cost from customers, then the costs should be recovered in the distribution base rate, rather than by a surcharge. (Tr. at 21.) If the Commission decides to allow a surcharge, then the customer contribution should be capped at some

amount, rather than the Company's contribution, to limit the customers' exposure.

16. **Staff.** Michael Sheehy, Public Utility Analyst and Case Manager for this docket, testified on behalf of Staff. Mr. Sheehy stated that Staff agrees with the Company regarding funding for the pilot. (Tr. 23.) In addition, he recommended that the Commission establish a working group to come back to the Commission by June 1, 2007 with a smart metering pilot proposal to be implemented within the third and fourth quarters of 2007. Mr. Sheehy added that the Joint Report meets the Commission directives outlined in PSC Order No. 6912 and that the recommendations are consistent with the public interest.

IV. FINDINGS AND RECOMMENDATIONS

17. Advanced metering (or "smart" metering) programs are designed to incent customers to reduce consumption at times of peak load. AMI also gives customers greater ability to control their electricity costs, and it provides the utility with significant operational improvements. (Ex. 2 at 7-8, 16.) In PSC Order No. 6912, the Commission directed me to submit a Report with proposed findings and recommendations concerning: (a) the feasibility of utilizing advanced metering technology (with attendant time-based rate schedules) as called for by 26 Del. C. § 1008(b)(1)b.; (b) the adoption (in whole or in part) of the time-based metering standard set forth in 16 U.S.C. §§ 2621(d)(14); and (c) the feasibility for regulated utilities to install time-based meters and communication devices for each of their customers as described in 16 U.S.C. § 2625(i).

18. Items (b) and (c) relate to the federal requirements under PURPA, as amended by the Energy Policy Act of 2005. The new PURPA standard, if adopted, would require Delmarva Power to offer each of its customer classes (and to provide individual customers upon request) a time-based rate schedule under which the rate charged varies during different time periods in conjunction with Delmarva Power's varying cost of wholesale power. 16 U.S.C. §§ 2621(d)(14). In the Joint Report, the Working Group stated that it believes that it is unnecessary to require the new PURPA standard at this time, and I agree. (Ex. 2 at 4.) Based on what the Working Group learned from its investigation, the business case has yet to be made for full-scale implementation of time-based metering in Delaware. It would be premature, therefore, to adopt the PURPA standard at this time. With respect to the PURPA feasibility determination for installation of time-based meters (under Item (c) above), this question is subsumed in the state law determination regarding advanced metering technology under the Supply Act of 2006 (*i.e.*, Item (a) above).

19. Regarding Item (a), the 23-page Joint Report, with four appendices, provides an excellent overview of the factors to be considered before moving forward with limited or full-scale implementation of an advanced metering program. It should also be noted that the Joint Report was the subject of a properly-noticed evidentiary hearing, which satisfies the procedural requirements under the state and federal mandates. Therefore, upon review of the Joint Report and consideration of the three options provided by the parties, the Commission will meet the requirements regarding consideration of

advanced metering programs, under both the Supply Act of 2006 and PURPA.

20. The parties agree that full-scale implementation of AMI in Delaware at this time would not be appropriate. They do not agree, however, on whether to institute a pilot program and, if a program is ordered, whether the Company or the ratepayers should pay for it. The Working Group provides three options for Commission consideration:

- Create a pilot program.
- Study pilots and full scale programs going on in other jurisdictions.
- Conclude that no action is required.

(Id. at 21-22.) Staff and DPA recommend the first option while Delmarva Power supports the second option.

21. Certainly, there are cost advantages to foregoing our own pilot program and, instead, simply monitoring the progress of other full-scale and pilot programs, as recommended by Delmarva Power. However, the parties to this proceeding, the Commission, and the legislature have already signaled a readiness for a pilot program in Delaware. In the 2001 PEPCO merger Settlement Agreement, which was approved by the Commission in 2002, the parties made a commitment to institute a smart metering pilot program in Delaware. Regarding the legislature, a pilot program would be the natural outcome of the provisions of the Supply Act of 2006 that encourage demand-side programs, including AMI. (Ex. 2 at 23.) For these reasons, I agree with Staff and DPA that it would be appropriate at this time to require a smart metering pilot program in Delaware. Simply monitoring

other programs would not be as helpful to Delaware's eventual move to advanced metering as would a Delaware-specific pilot program. As a start, Staff, Delmarva Power and DPA should establish a working group that will submit to the Commission, by June 1, 2007, a pilot proposal to be implemented within the third and fourth quarters of 2007, as recommended by Staff witness Sheehy. (Tr. 23.)

22. Regarding funding for the pilot, DPA argues that the Company will benefit the most from advanced metering and, therefore, it should pay for the entire pilot program. However, absent an agreement from Delmarva Power to fund the program, if the Commission orders Delmarva Power to implement a pilot program, it would then be hard-pressed to deny recovery of the reasonable cost of the program.³ Moreover, under the Supply Act of 2006, the costs of demand-side management programs, such as AMI, are recoverable in distribution rates. 26 Del. C. § 1008(b)(1)(a). I recommend, therefore, that the Commission accept the proposal from Staff and Delmarva Power that Delmarva Power contribute up to \$250,000 toward the cost of the pilot program, with any remaining costs recovered from distribution ratepayers through a non-bypassable surcharge collected over the duration of the pilot program. A surcharge is preferable to waiting for the next distribution base rate case (as recommended by DPA), because recovery under a surcharge would be better timed with the incurrence of the expenditures, both when recovery starts and when it stops.

³ Under Delaware's business judgment rule, the Commission must allow the normally accepted operating expenses of a utility "unless found to have been made in bad faith or out of an abuse of discretion." (*Delmarva Power & Light Company. v. Public Serv. Comm'n*, Del. Supr., 508 A.2d 849, 859 (1986).)

23. In summary, and for the reasons stated above, I recommend the following:

- A) That the Commission find that upon consideration of the evidence in this case and the issuance of an order selecting one of the three options provided by the Working Group, it has met the requirements of: (1) Delaware's Electric Utility Retail Customer Supply Act of 2006 relating to consideration of advanced metering requirements; and (2) the federal Public Utility Regulatory Policies Act of 1978 ("PURPA"), as amended by the Energy Policy Act of 2005, relating to time-based metering and communications.
- B) That the Commission decide not to require Delmarva Power (or other retail electric suppliers) to implement the new federal standard, under PURPA, relating to time-based metering and communications at this time.
- C) That the Commission accept Staff and DPA's recommendation to direct Delmarva Power to conduct a smart-metering pilot program in Delaware. As a start, Staff, Delmarva Power and DPA should establish a working group that will submit to the Commission, by June 1, 2007, a pilot proposal to be implemented within the third and fourth quarters of 2007.
- D) That the Commission accept Staff and Delmarva Power's funding proposal, which requires Delmarva Power to contribute up to \$250,000 toward the cost of the pilot program, with the remaining costs collected through a non-bypassable customer distribution surcharge collected over the duration of the pilot program.

Respectfully submitted,

William F. O'Brien
Senior Hearing Examiner

Dated: December 19, 2006